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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MILLS, DONALD L	

ART UNIT	PAPER NUMBER
2662	3

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/742,382	LEE ET AL.	
	Examiner	Art Unit	
	Donald L Mills	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because: Figures 3 and 4 do not depict reference numbers. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Referring to page 6, lines 16-19, it is unclear how congestion of the network is measured from the following: *congestion of the network is measured in a manner that the loss and the order of the packet form the permutation number in the packet of the IP datagram, and degree of congestion is measured on the basis of the computed bandwidth, the packet loss amount or whether an error has occurred* (See page 6, lines 16-19.)

Appropriate correction is required.

Claim Objections

3. Claim 6 is objected to because of the following informalities:

The claim lacks a clear preamble, transition, and body. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 2 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 2, the claim specifies "an error signal" (See claim 2, line 20.) The specification merely describes *an error occurs* (See page 6, line 4.) One of ordinary skill in the art cannot ascertain as to which types of errors are being detected, for example, bit errors, frame errors, or errors generated due to a link failure.

Further regarding claim 2, the claim specifies "analyzing the received error message to measure bandwidth and a degree of congestion of the network" (See claim 2, lines 22-23.) However, the specification only describes *the source area 100 analyzes the message* (See page 5, lines 9-10.) One of ordinary skill in the art would not be able to recreate the invention of determining the bandwidth of the network from a received error message without undue experimentation.

Regarding claim 4, the claim specifies "judging over whether an error has occurred" (See claim 4, line 7.) However, the specification does not describe any such judgment process.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the claim specifies "the following steps" (See claim 1, lines 13-14,) however, no such subsequent steps are provided.

Regarding claim 2, the claim specifies "network operating system" (See claim 1, line 20.) However, a network operating system is defined as a computer operating system that supports workstations and computer terminals. Furthermore, the specification describes *an error occurring on the network* (See page 6, line 4,) not in the network operating system.

Regarding claim 6, the claim specifies "through a destination connected to a network and the network to the destination system, analyzing a packet transmitted form the destination" (See claim 6, line 15.) However, the specification describes *transmitting the generated IP datagram to the destination system* (See page 5, lines 24-25,) and ***the packet transmitted** is returned from the destination system to the source area system* (See page 6, line 2.)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knauerhase et al. (US 6,215,774 B1), hereinafter referred to as Knauerhase in view of Hadi Salim et al. (US 6,535,482 B1), hereinafter referred to as Hadi Salim.

Regarding claim 1, Knauerhase discloses a system for dynamically determining effective speed of a communication link, which comprises:

Assigning a destination and a monitor period to a module for monitoring a state of a network installed in a source area (Referring to Figure 2, determining effective link speed for communications between first device **2**, source, and second device **4**, destination, utilizing one or more "pings" when the link is idle. See column 3, lines 40-43.)

Generating a specific packet for measuring a bandwidth of the network (Referring to Figure 2, the source device transmits a ping, an ICMP echo request, to the destination device (Step **110**) for measuring effective link speed (Step **140**). In addition, it may derive a measure of effective link speed in terms of a quantity of data transmitted per unit of time. See column 3, lines 9-11, 20-22, and 33-34.)

Transmitting the specific packet through a network layer to a designated destination (Referring to Figure 2, the source device transmits a ping, an ICMP echo request, to the destination device (Step **110**). See column 3, lines 9-11.)

Returning the packet received by the destination to the source area; analyzing a message transmitted from the destination and measuring a bandwidth of the network (Referring to Figure 2, the destination device receiving the ping will transmit a responsive ping back to the source device, the source device uses the time period to derive a measure of effective link speed (Step

140). In addition, it may derive a measure of effective link speed in terms of a quantity of data transmitted per unit of time. See column 3, lines 13-15, 20-22, and 33-34.)

Repeatedly performing the step of generating the packet and the following steps in every assigned monitor period during a predetermined time, thereby recognizing a network state (Referring to Figure 2, a more detailed measure of effective link speed is determined by increasing the frequency at which the link speed is periodically rechecked. See column 3, lines 60-63.) Knauerhase does not disclose *measuring a degree of congestion.*

Hadi Salim teaches a TCP source sending data to the IP source, which is sent in the form of IP packets to router A. Router A determines the degree of congestion (See column 6, lines 57-60.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the congestion detection method of Hadi Salim in the system of Knauerhase. One of ordinary skill in the art would have been motivated to do so in order to determine the factor link congestion plays in the speed of a link as taught by Knauerhase (See column 4, lines 9-10.)

Regarding claim 2 as explained above in the rejection statement of claim 1, Knauerhase and Hadi Salim disclose all of the claim limitations of claim 1 (parent claim). Knauerhase does not disclose *detecting an error signal in the network operating system; transmitting an error message to the source area; and analyzing the received error message to measure a bandwidth and a degree of congestion of the network, thereby recognizing a network state.*

Hadi Salim teaches a TCP source sending data to the IP source, which is sent in the form of IP packets to router A. Router A determines the degree of congestion (See column 6, lines 57-

60.) And, sends an ISQ back to the IP source indicating the level of congestion (See column 6, lines 62-63.) Knauerhase teaches a method of measuring of effective link speed and determining data per unit of time for communications between network devices (See column 2, lines 31-32 and column 3, lines 31-34.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the congestion detection method of Hadi Salim in the system of Knauerhase. One of ordinary skill in the art would have been motivated to do so in order to determine the factor link congestion plays in the speed of a link as taught by Knauerhase (See column 4, lines 9-10.)

Regarding claim 3, the primary reference further teaches *wherein the bandwidth of the network is computed by dividing the size of the packet by the difference between the time at which the packet is transmitted form the source area and the time at which the message transmitted from the destination is received by the source area* (Referring to Figure 2, by marking the beginning time and ending time for the transmission, first device **2** derives a measure of effective link speed in terms of a quantity of data transmitted per unit of time. See column 3, lines 31-34.)

Regarding claim 4 as explained above in the rejection statement of claim 1, Knauerhase and Hadi Salim disclose all of the claim limitations of claim 1 (parent claim). Knauerhase does not disclose *wherein the degree of congestion of the network is computed by measuring a bandwidth and a packet loss amount or judging over whether an error has occurred.*

Hadi Salim teaches if the Congestion Experienced, CE, bit has been set previously, at **320**, it is determined if the packet has been dropped by the RED process and if so the congestion level index is set (See column 8, lines 4-7.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the congestion detection method of Hadi Salim in the system of Knauerhase. One of ordinary skill in the art would have been motivated to do so in order to determine the factor link congestion plays in the speed of a link as taught by Knauerhase (See column 4, lines 9-10.)

Regarding claim 5 as explained above in the rejection statement of claim 1, Knauerhase and Hadi Salim disclose all of the claim limitations of claim 1 (parent claim). Knauerhase does not disclose *wherein in case that a destination is changed, the step for assigning a destination and a monitor period and the following steps are sequentially performed again.*

Knauerhase teaches a method of measuring of effective link speed and determining data per unit of time for communications between network devices (See column 2, lines 31-32 and column 3, lines 31-34.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the congestion detection method of Hadi Salim in the link measurement system of Knauerhase for link measurement for different destinations. One of ordinary skill in the art would have been motivated to do so in order to determine the factor link congestion plays in the speed of a link as taught by Knauerhase (See column 4, lines 9-10,) for all possible destinations. In addition, unexpected results are not produced.

Regarding claim 6, Knauerhase discloses a system for dynamically determining effective speed of a communication link, which comprises:

A source area system having a module for transmitting a specific packet through a destination connected to a network and the network to the destination system, analyzing a packet transmitted form he destination (Referring to Figure 2, the source device transmits a ping, an ICMP echo request, to the destination device (Step **110**). The destination device receiving the ping will transmit a responsive ping back to the source device, the source device uses the time period to derive a measure of effective link speed (Step **140**). See column 3, lines 9-15 and 20-22, and 33-34.) *And, measuring a bandwidth of the network to thereby recognize a network state* (Referring to Figure 2, by marking the beginning time and ending time for the transmission, first device **2** derives a measure of effective link speed in terms of a quantity of data transmitted per unit of time. See column 3, lines 31-34.) Knauerhase does not disclose *measuring a degree of congestion.*

Hadi Salim teaches a TCP source sending data to the IP source, which is sent in the form of IP packets to router A. Router A determines the degree of congestion (See column 6, lines 57-60.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the congestion detection method of Hadi Salim in the system of Knauerhase. One of ordinary skill in the art would have been motivated to do so in order to determine the factor link congestion plays in the speed of a link as taught by Knauerhase (See column 4, lines 9-10.)

Regarding claim 7, the primary reference further teaches *wherein the module for recognizing a network state is installed at one side of either the destination or the source area* (Referring to Figure 2, the source device transmits a ping, an ICMP echo request, to the destination device (Step **110**) for measuring effective link speed (Step **140**). See column 3, lines 9-11 and 20-22.)

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L Mills whose telephone number is 703-305-7869. The examiner can normally be reached on 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Donald L Mills

DLM

March 19, 2004

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